Newborn Screening: Special Considerations

Special attention is needed when infants are premature or sick (requiring three or more weeks of hospitalization). Special issues also arise if the infant has been transfused, placed on hyperalimentation, steroids, or antibiotics. Below are the issues of concern and recommendations to assure that these children receive appropriate screening.

Transfusions, Hyperalimentation and Steroids

Whenever possible, the first newborn screening specimen should be obtained prior to blood transfusion or administration of steroids or hyperalimentation. If no therapies are administered, the first specimen should be collected between 18 and 48 hours of age. Specimens collected following red blood cell transfusions will invalidate results for galactosemia and hemoglobinopathy screening. Hyperalimentation or exposure to antibiotics can cause false positive results for several metabolic disorders. Steroids administered to the mother or newborn can cause a false negative result for a baby with congenital adrenal hyperplasia (CAH).

Please note: newborn screening cards now have a "Maternal Steroids" checkbox and "date last" field. Check the maternal steroids box if the mother received any dose of steroids within the 7 days before specimen collection and indicate the date of last steroid administration. Babies exposed to steroids, either directly or through the mother, should have a subsequent specimen collected at least 7 days after discontinuing therapy, but no more than 10 days after discontinuing therapy to reduce the chance of missing an affected child.

Premature & Sick Infants

Premature infants and sick infants (requiring three or more weeks of hospitalization) who have congenital hypothyroidism may have a delayed rise in thyroid stimulating hormone (TSH). Therefore, a third specimen is recommended for these infants. This specimen should be collected at 4-6 weeks of age or just prior to hospital discharge, whichever is sooner.

Special Considerations and the Newborn Screening Card

When a baby is housed in the NICU at time of specimen collection and has been transfused prior to collection, on hyperalimentation/TPN within 24 hours of collection, or on steroids or antibiotics within the 7 days before specimen collection, please mark the appropriate boxes in the 'Special Considerations' section of the newborn screening card. This section should include information pertaining to baby only. Other information that may be relevant to the interpretation of newborn screening results should be written in the 'Miscellaneous Information' section. This could include indication that antibiotics were administered to the mother prior to delivery, timing of administration (baby or mother), the presence of meconium ileus, etc.

Summary - Timing of Newborn Screening Specimens

- A first specimen is mandatory and must be collected before discharge from the hospital or by 5 days of age if the infant remains in the hospital (WAC 246-650-020). However, with the addition of several potentially life-threatening, sudden-onset disorders, we recommend that the first specimen be collected no later than 3 days of age. This specimen should be obtained prior to blood transfusion or administration of hyperalimentation or steroids.
- A second specimen is recommended for all infants between 7 and 14 days of age.
- A third specimen should be collected from infants who have a birthweight under 1500 grams or require hospitalization longer than three weeks. This specimen should be collected at 4-6 weeks of age or just prior to hospital discharge, whichever is sooner.
- An additional specimen should be collected from infants who are transfused before the first specimen if there is reason to suspect abnormal hemoglobin or galactosemia status (such as family history or clinical symptoms). This specimen should be collected 4-6 weeks after the last transfusion.

For babies exposed to **steroids**, a subsequent specimen should be collected 7-10 days after discontinuing therapy to reduce the chance of missing an affected baby (false negative).

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3/2013